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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/424,210	11/22/1999	JON TSCHUDI	2036-170	7676

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EXAMINER

LAROSE, COLIN M

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 02/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/424,210

Applicant(s)

TSCHUDI, JON

Examiner

Colin M. LaRose

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Arguments and Amendments

1. Applicants' arguments and/or amendments filed 29 January 2003, have been entered and made of record. Claims 1-14 have been canceled. Claims 15-28 have been added. Claims 15-28 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 15-17 and 20-28 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 15, Applicant cites page 5, lines 25-35 of the Specification as support for this claim. However, in the cited paragraph, there is no disclosure or suggestion for

“determining which of the plurality of images overlap or partially overlap other of the plurality of images,”

“disregarding those images which overlap or partially overlap,” and

“constructing a two-dimensional image... from only non-overlapping images.”

Clarification as to where support for these features in the original disclosure is requested.

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Regarding claims 20 and 21, Applicant cites page 4, lines 7+ of the Specification as support for this claim. However, in the cited paragraph, there is no disclosure or suggestion for “using the ascertained speed to determine the required relative positioning of at least a portion of the plurality of images.” Clarification as to where support for this feature in the original disclosure is requested.

Regarding claim 24, applicant is requested to show support for
“using the ascertained speed to determine which of the plurality of images overlap or partially overlap,”

“disregarding those images which overlap or partially overlap,” and

“constructing a two-dimensional image... from only non-overlapping images.”

For claim 25, Applicant is requested to show support for
“means for determining which of the plurality of images overlap or partially overlap... from the speed... and to disregard those images which overlap or partially overlap,” and
“means for constructing a two-dimensional image... from only non-overlapping images.”

Claims 16, 17, 22, 23 and 26-27 are rejected for dependence on rejected base claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Mainguet.

Only those features that are supported by the Specification are considered.

Regarding claim 15, Mainguet discloses a method for sensing a fingerprint comprising:
generating a plurality of images (figure 5) of different portions of a fingerprint surface by measuring structural features of the fingerprint surface at given intervals of time with an essentially one-dimensional sensor array (10, figure 2) as the fingerprint surface is moved relative to the sensor array in a direction that is generally perpendicular to the sensor array (this is illustrated in figure 2); and

constructing a two-dimensional image (figure 12) of the fingerprint surface obtained from said generating step.

Regarding claim 16, Mainguet discloses the measuring is performed at each of a plurality of equally spaced measuring points arranged in at least one line corresponding to the essentially one-dimensional sensor array (figure 3).

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6. Claims 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 5,828,773 by Setlak et al. ("Setlak").

Regarding claim 18, Setlak discloses applying a varying voltage to a finger positioned over an electrode (figure 7: a varying voltage 74 is applied to finger through the conducting electrode layer 71); and

measuring the capacitance or impedance between the electrode and a capacitive sensor array through a fingerprint surface positioned over both the electrode and the capacitive sensor array (figures 8 and 10: capacitance between electrode 71 and sensor array elements 78 through finger surface 79 is measured by the sensor elements),

wherein the sensor array is separately disposed from the electrode (figure 6 shows sensor array 78 and electrode 71 are disposed in separate layers) and the capacitive sensor array is adapted to detect variations in capacitance or impedance across the array caused by structural features of a portion of the fingerprint surface positioned over the array (e.g. see figure 10).

Regarding claim 19, Setlak discloses forming a two-dimensional image representative of the structural features of at least a portion of the fingerprint surface using the variations in capacitance or impedance detected in said measuring step (figure 25, image 206).

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mainguet in view of U.S. Patent 3,622,989 by Dowdy, Sr. *Only those features that are supported by the Specification are considered.*

Regarding claim 17, Mainguet teaches measuring is performed simultaneously at each of a plurality of equally spaced measuring points arranged in at least two generally parallel lines, wherein the measuring points of one line are shifted vertically with respect to the measuring points of the next line, and wherein said generating is performed from measurements performed at one of the said at least two lines (see column 5, lines 44-50).

Mainguet is silent to the lines spaced apart by a distance different from the distance separating the measuring points.

Dowdy, Sr. discloses a fingerprint sensor configuration (figure 2), wherein measuring points on pairs of parallel lines are spaced apart by a distance different from the distance between measuring points. For example, the five measuring points at twelve o'clock are generally parallel to the five measuring points at six o'clock, and the distance between the two groups of points is different from the distance separating the measuring points of each group, as is illustrated.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Mainguet by Dowdy, Sr. to achieve the claimed measuring point arrangement since Dowdy, Sr. teaches the claimed arrangement is a conventional arrangement operative to sense a fingerprint by direct contact (column 4, lines 2-4).

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9. Claims 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Setlak in view of Mainguet and U.S. Patent 5,864,296 by Upton. *Only those features that are supported by the Specification are considered.*

Regarding claims 20 and 24, Setlak discloses the features of claim 18, as recited above, and generating image portions (206, figure 25).

Setlak is silent to generating image portions when the surface is moved relative to the array, ascertaining a speed of movement, and constructing a 2-D image from the generated images.

Mainguet discloses a fingerprint system wherein the finger is moved in relation to the sensor (figure 2) so that a plurality of images is generated at different time intervals (figure 5), and a 2-D image is constructed from the different images (figure 12). Mainguet teaches that the speed of the finger with respect to the sensor is determined for an essentially one-dimensional array (column 4, lines 62+). The speed is used to reconstruct the overall image of the fingerprint (column 5, lines 3-7 and figure 12). In reconstructing the image, overlapping sections are correlated.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Setlak by Mainguet to generate images of a moving finger, ascertain the speed of movement, and construct the 2-D image from the generated images since Mainguet teaches a system that generates an image of a fingerprint by sliding the finger over a sensor utilizes a smaller and thus cheaper sensor (column 3, lines 25-27), and ascertaining the speed of the finger is required to reconstruct a full image of the fingerprint when the sensor is small (column 4, lines 66+).

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Mainguet is silent to ascertaining the speed using two sensing elements spaced apart by a predetermined distance and determining the speed from the distance and a time lapse, as claimed.

Upton discloses ascertaining the speed with two sensing elements spaced apart by a predetermined distance (each pair of column sensors 16, figure 3 and column 4, lines 16-17) and determining the speed from the distance and a time lapse between passage of identical features (e.g. figure 12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Mainguet by Upton to ascertain the speed as claimed since Upton shows the claimed ascertaining of the speed using two sensors spaced apart is a conventional method for determining the speed of a finger.

10. Claims 21-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mainguet and Upton. *Only those features that are supported by the Specification are considered.*

Regarding claim 21, Mainguet discloses

generating a plurality of images (figure 5) of different portions of a fingerprint surface by measuring structural features of the fingerprint surface at given intervals of time with an essentially one-dimensional sensor array (10, figure 2) as the fingerprint surface is moved relative to the sensor array in a direction that is generally perpendicular to the sensor array (this is illustrated in figure 2);

ascertaining the speed of movement (column 4, lines 66+) of the fingerprint surface relative to the sensor array

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forming a two-dimensional image (figure 12) of the fingerprint surface larger than any one of the plurality of images.

Mainguet is silent to ascertaining the speed as claimed.

Upton discloses ascertaining the speed with two sensing elements spaced apart by a predetermined distance (each pair of column sensors 16, figure 3 and column 4, lines 16-17) and determining the speed from the distance and a time lapse between passage of identical features (e.g. figure 12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Mainguet by Upton to ascertain the speed as claimed since Upton shows the claimed ascertaining of the speed using two sensors spaced apart is a conventional method for determining the speed of a finger.

Regarding claim 22, Upton teaches the two sensing elements comprises sensors in the sensor array (i.e. the sensors 16, figure 3 are used to measure the speed, and they are in the sensor array).

Regarding claim 23, Upton teaches that sensors are in two different groups of sensing elements arranged in two spaced-apart parallel lines (2x5 array of sensing elements 23, figure 3).

Regarding claim 25, Upton discloses

an essentially one-dimensional sensor array (23, figure 1) and associated circuitry (40, figure 1) constructed and arranged to generate a plurality of signals (figure 6) of different portions of a fingerprint surface by measuring structural features of the fingerprint surface at given intervals of time as the fingerprint surface is moved relative to said sensor in a direction

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that is generally perpendicular to said sensor array (figure 1 shows that the finger is moved perpendicular to the array); and

at least one pair of sensing elements (76,78, figure 9), where the sensing elements in each pair are spaced apart by a predetermined distance and are constructed and arranged to sense structural features of the fingerprint surface moved over said two sensing elements of each pair, to determine a time lapse between passage of identical structural features over one sensing element and then the other (see figure 12), and to determine the speed of movement of the fingerprint surface relative to the sensor array from the predetermined distance and the time lapse (column 10, lines 26-36).

Upton generates trajectory signals rather than images and does not construct a two-dimensional image of the fingerprint.

Mainguet discloses a similar fingerprint system wherein the finger slides over the sensor to measure characteristics of the finger. Mainguet's generated signals correspond to image signals (figure 5). Those signals are then used to construct a 2-D representation of the fingerprint (figure 12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Upton by Mainguet to generate image signals and a 2-D image from the generated signals, since fingerprints are conventionally processed as images.

11. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mainguet, Upton, and Setlak. *Only those features that are supported by the Specification are considered.*

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Regarding claim 26, Upton and Mainguet are silent to applying a varying voltage to a finger.

Setlak discloses the claimed features, substantially in accordance with claim 18.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Mainguet and Upton by Setlak to achieve the claimed configuration of the apparatus since Setlak teaches the claimed apparatus is operative to capture a fingerprint and is compact and inexpensive (column 2, lines 60-63).

Regarding claim 27, Upton teaches the two sensing elements comprises sensors in the sensor array (i.e. the sensors 16, figure 3 are used to measure the speed, and they are in the sensor array).

Regarding claim 28, Upton teaches that sensors are in two different groups of sensing elements arranged in two spaced-apart parallel lines (2x5 array of sensing elements 23, figure 3).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37


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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (703) 306-3489. The examiner can normally be reached Monday through Thursday from 8:00 to 5:30. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au, can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (703) 306-0377.


AMELIA M. AU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

CML

Group Art Unit 2623

20 February 2003